



PLANT PURCHASING SPECIFICATION BHOPAL

BP 22483

Rev. NO. 06

PAGE 1 OF 3

EPOXY BONDED GLASS FABRIC BASE LAMINATED SHEET & COMPONENTS

SUPERSEDES
BP 22483 Rev.05

1. GENERAL :

This specification governs the quality of laminated sheet made from layers of plain woven glass fabric (non-alkaline glass type E) having suitable silane / volan finish with excellent mechanical and electrical properties using thermosetting epoxy resin as the bonding medium. The material has temperature index of at least 155.

Note : Whenever the components are ordered the supplier shall ensure that length of the components shall be in longitudinal direction of sheet only.

2. APPLICATION :

This insulating material is used for support rod, operating rod and other parts of electrical machines, where high mechanical and electrical properties are required.

3. COMPLIANCE WITH NATIONAL STANDARDS :

There is no Indian Standard covering this material.

4. DIMENSIONS AND TOLERANCES :

Shall be stated on the order or drawing accompanying the order.

5. FINISH :

The surface of the components shall be even, smooth, free from visible defects like blisters, loose fibers, resin concentration, delamination, wrinkles, local deformation and dents.

6. TEST METHODS :

Unless otherwise specified the tests shall be conducted in accordance with the relevant methods of Corporate Standard AA 085 17 01.

7. SAMPLE FOR TEST :

Three sheets of size 300x300x3mm and two sheet of size 300x300x10 mm prepared from the same batch, shall be supplied for testing and approval. Longitudinal direction shall be clearly marked on test samples.

Revision : Reviewed & Brought upto date

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PLANT PURCHASING SPECIFICATION BHOPAL

BP 22483

Rev. NO. 06

PAGE 2 OF 3

8. PHYSICAL PROPERTIES :

8.1 Specific Gravity : 1.85 - 1.95.

8.2 Glass Content : 65 - 71 %.

9.0 MECHANICAL PROPERTIES :

9.1 Tensile Strength in Longitudinal Direction : 350 N/mm², Min.
(For Sheet 1.5 mm tk and above)

9.2 Cross Breaking Strength :

9.2.1 As Received Condition : 350 N/mm², Min.

9.2.2 After Heating at 155 ± 3 °C for 60 ± 5 minutes and tested at 155 ± 3 °C.

The reduction shall not be more than 50% of the value in as received condition.

9.3 Impact Strength in Longitudinal Direction : 200 K j / m², Min.- Flat wise

9.4 Notched - Impact Strength in Longitudinal Direction ; 150 K j / m², Min. Flat wise

Test shall be carried out on 10 mm tk. Sheet as per AA 085 17 01 except that test specimen will have U - notch of width 2 ± 0.2 mm & depth shall be 1/3 of thickness of sheet under test. Radius at corners & bottom of the notch shall be less than 0.2 mm.

9.5 Machinability (For sheets 3.0 mm and above) :

The sheets shall be capable of being sawn, milled, drilled and tapped with a M 3.5 tap and shall be capable of being shaped in a shaping machine without showing any sign of cracking or chipping.

10.0 ELECTRICAL PROPERTIES :

10.1 Electrical Strength (Proof) in oil at 90 ± 2 °C :

10.2 Flatwise : 40 kV for 1 Minute. Test shall be carried out on 3 mm thick sheet.

10.2.1 Edgewise : 60 kV for 1 minute.

Test shall be carried out on sheets/components above 3 mm thick.

10.3 Comparative Tracking Index : 420, Min.

10.4 Breakdown Strength - Edgewise (After Ageing) :

10.4.1 After ageing at 100 ± 2 °C for 24 ± 0.5 hours : 6.6 kV / cm, Min.

10.4.2 After Ageing at 100 ± 2 °C for 100 ± 1.0 hour : 6.6 kV / cm, Min.



**PLANT PURCHASING SPECIFICATION
BHOPAL**

BP 22483

Rev. NO. 06

PAGE 3 OF 3

11.0 TEST CERTIFICATE :

Unless otherwise specified three copies of test certificate shall be supplied.

In addition, the supplier shall ensure to enclose one copy of test certificate alongwith their dispatch documents to facilitate quick clearance of material.

The test certificate shall bear the following information :

BP 22483 : Epoxy Bonded Glass Fabric Base Laminated Sheet & Components.
(Rev.06)

BHEL Order No.

Supplier's Reference :

Batch/Lot No.

Test Values obtained/certificate for compliance for clause 5 and 8 to 10.

12. PACKING AND MARKING :

Identification slips shall be pasted suitably on all sheets / components giving manufacturer's code number/grade. The sheets/components shall be suitably packed in wooden case lined with water proof paper from inside. Each sheet / component should be separated from other sheet / component by a thick paper or card-board. Longitudinal direction shall be clearly marked on each sheet/component.

Each package shall be marked with the following information:

BP 22483 : Epoxy Bonded Glass Fabric Base Laminated Sheet & Components.

BHEL Order No.

Supplier's Name & Grade.

Batch / Lot No.

Dimension / Drawing No.

No. of Sheets / Component.

Net Weight and Gross Weight.

Test Certificate No.